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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,534	07/20/2001	John M. Baron	10005753-1	1977

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EXAMINER	
COUSO, YON JUNG	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/909,534	BARON, JOHN M.	
	Examiner	Art Unit	
	Yon Couso	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/6/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant's arguments filed May 6, 2005 have been fully considered but they are not persuasive.

a. The rejection made under 35 USC 112, first paragraph has been withdrawn in response to the amendment.

b. The applicant argues that Tretter does not teach performing receiving, identifying, determining, rotating and displaying within a digital camera. The examiner notes that Tretter discloses receiving, identifying, determining, rotating and displaying processing of photographed images. Zimmermann teaches performing a rotation operation on said image captured by said image sensor in the digital camera so as to provide corrected image data reducing a misalignment of said image (camera system shown in figure 1 and column 8, lines 14-20). It would have been obvious to one of ordinary skill in the art to incorporate old and well-known image processing techniques, such as receiving, identifying, determining, rotating and displaying into a digital camera system because they are all well-known image processing steps taught in processing images obtained by conventional optical camera means.

c. The applicant argues that Zimmermann does not teach a tilt determining mechanism configured to automatically sense orientation errors of received images. The examiner disagrees. Zimmermann discloses a tilt determining mechanism configured to automatically sense orientation errors of received images (column 3, lines 30-39).

d. The applicant argues that the Zimmermann teaches away from incorporating Sharp's tilt sensor because Zimmermann's camera system is motionless. The applicant

also argues that there is not reason to combine Sharp with Zimmermann because Zimmermann already teaches tilt determining mechanism. The examiner disagrees. Even though Zimmermann discloses tilt determining mechanism (detecting orientation error), Zimmermann does not teach details on a tilt sensor. Sharp teaches a tilt sensor which can be used in digital camera or cam coder. Zimmermann and Sharp are combinable because they are both from the area of digital camera and cam coder. It would have been obvious to one of ordinary skills in the art to incorporate tilt sensor taught in Sharp into the Zimmermann's tilt determining mechanism because Zimmermann already teaches tilt determining and correcting mechanism more or less manually. Incorporation of tilt sensor into the digital camera taught in Zimmermann would increase the efficiency and reliability. Given the obvious benefits, it would have been obvious to one of ordinary skills in the art, at the time the invention was made, to incorporate a tilt sensor taught in Sharp into the Zimmermann's tilt determining mechanism.

e. The applicant also argues that it is not proper to combine the Tretter reference and the Sharp reference. The examiner disagrees. Even though Tretter does not teach details on camera, Tretter discloses processing photographed images. Sharp teaches a tilt sensor which can be used in digital camera or cam coder. Sharp also teaches automatic detection of orientation errors includes operating a tilt angle sensor to determine a tilt parameter value (page 1). It would have been obvious to one of ordinary skills in the art to incorporate tilt sensor taught in the Sharp reference into the Tretter's skew angle correction mechanism because automatic detection of orientation errors is

old and well-known technique in the image orientation correction art. Moreover, Tretter and Sharp are combinable because they are both directed to correcting the tilt in the image. Regardless of whether image is obtained by conventional optical camera or digital camera, both still require all the orientation distortion, including tilt and rotation correction.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-6, 8, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tretter in view of Zimmermann.

As per claim 1, Tretter teaches a method for automatic detection and correction of image orientation errors comprising the steps of: receiving a digital representation of an image (150 and 125 in figure 3); identifying at least one vertical or horizontal objects within said image (angle shown in figure 5); determining an orientation error of at least one of said identified vertical or horizontal objects (column 8, lines 12-20); rotating said digital representation of said identified image in a manner to reduce said orientation error; and displaying a corrected digital image (121 in figure 2). Tretter does not teach details on performing receiving, identifying, determining, rotating and displaying within a digital camera. However, Tretter discloses receiving, identifying, determining, rotating and displaying processing of photographed images. Zimmermann teaches performing a

rotation operation on said image captured by said image sensor in the digital camera so as to provide corrected image data reducing a misalignment of said image (camera system shown in figure 1 and column 8, lines 14-20). It would have been obvious to one of ordinary skill in the art to incorporate old and well-known image processing techniques, such as receiving, identifying, determining, rotating and displaying into a digital camera system because they are all well-known image processing steps taught in processing images obtained by conventional optical camera means.

As per claim 16, Tretter teaches a scanner comprising: an image sensor (125 in figure 3); a display connected to display an image captured by said image sensor (121 in figure 2); an orientation sensor identifying an orientation of said image sensor with respect to said image captured by said image sensor (202 in figure 3); and an image processor responsive to said orientation sensor for performing a rotation operation on said image captured by said image sensor so as to provide corrected image data reducing a misalignment of said image (column 8, lines 12-20). Even though Tretter does not teach details on camera, Tretter discloses processing photographed images. Zimmermann teaches performing a rotation operation on said image captured by said image sensor in the digital camera so as to provide corrected image data reducing a misalignment of said image (column 8, lines 14-20). It would have been obvious to one of ordinary skill in the art to incorporate old and well-known image orientation correction technique into image captured by a digital camera because regardless of whether image is obtained by conventional optical camera or digital camera, both still require all the orientation distortion, including tilt and rotation.

As per claim 17, Tretter teaches a memory configured to store said corrected image data (104 in figure 2).

As per claims 5, 18, and 19, even though Tretter and Zimmermann do not teach details on lossy compression algorithm, compression is divided into two categories, lossy or lossless. Most of all image compression is performed based on one of lossy compression algorithm and most of all image data are compressed before storage or transmission. It would have been obvious to one of ordinary skill in the art to incorporate compression algorithm into digital image processing technique.

As per claim 20, Tretter teaches that the image captured by said image sensor is stored in said memory when said identified orientation is greater than a predetermined maximum value (multiple skew angle at column 7, lines 32-57).

As per claim 3, Tretter teaches checking a disable feature to ensure said automatic detection and correction of orientation errors should be performed (column 7, lines 32-57).

As per claim 4, Tretter teaches disabling said automatic correction of orientation errors for orientation errors in excess of a predetermined maximum amount (multiple skew angle at column 7, lines 32-57).

As per claim 6, Tretter teaches that the automatic detection of orientation errors is performed from identified edges of objects contained within the digital representation of an image (figure 5 and column 6, lines 5-14).

As per claim 8, Tretter teaches that the both horizontal and vertical objects are used in said automatic detection of orientation errors (horizontal and vertical edges of

the document in figure 5).

3. Claims 9, 10, 12, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmermann.

As per claim 9, Zimmermann teaches an image orientation correction system comprising: a user-selectable input device (12 and 13 in figure 1 and column 3, lines 39-43); a tilt determining mechanism configured to automatically sense orientation errors of received images(column 3, lines 30-39); a processor configured to respond to said user-selectable input device and to send said orientation errors of an image for modifying said image to remove said orientation errors (column 3, lines 39-43); and; a display configured to display a digital image as modified by said processor (column 3, lines 46-48 and 11 in figure 1).

As per claim 10, Zimmermann teaches that the user-selectable input allows a user to disable said orientation correction system (12 and 13 in figure 1 and column 3, lines 39-43).

As per claim 12, Zimmermann teaches the tilt determining mechanism is implemented via software (column 5, line 20-column 8, line 13).

As per claim 16, Zimmermann teaches a camera comprising: an image sensor (12 and 13 in figure 1 and column 3, lines 39-43); a display connected to display an image captured by said image sensor (11 in figure 1); an orientation sensor automatically identifying an orientation of said image sensor with respect to said image captured by said image sensor (column 3, lines 30-39); and an image processor responsive to said orientation sensor for performing a rotation operation on said image

captured by said image sensor so as to provide corrected image data reducing a misalignment of said image (column 3, lines 39-43).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann as applied to claim 9 above, and further in view of Sharp "GP1S36 Tilt Detecting Photointerrupter" (herein called 'Sharp').

As per claim 11, Zimmermann discloses tilt determining mechanism. However, Zimmermann does not teach details on a tilt sensor. Sharp teaches a tilt sensor which can be used in digital camera or camcoder. It would have been obvious to one of ordinary skills in the art to incorporate tilt sensor taught in Sharp into the Zimmermann's tilt determining mechanism because Zimmermann already teaches tilt determining and correcting mechanism more or less manually. Incorporation of tilt sensor into the digital camera taught in Zimmermann would increase the efficiency and reliability. Given the obvious benefits, it would have been obvious to one of ordinary skills in the art, at the time the invention was made, to incorporate a tilt sensor taught in Sharp into the Zimmermann's tilt determining mechanism.

5. Claims 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann in view of Tretter.

As per claim 13, even though Zimmermann does not teach details on the software implemented tilt determining mechanism that detects and uses an edge of an object contained within said digital representation of said image to determine said orientation errors of said digital image, Zimmermann discloses the tilt determining mechanism is implemented via software (column 5, line 20-column 8, line 13).

Zimmermann also teaches software implemented tilt determining mechanism that uses X-map and Y-map processor to perform two-dimensional transform mapping. Moreover, Tretter teaches the software implemented tilt determining mechanism that detects and uses an edge of an object contained within said digital representation of said image to determine said orientation errors of said digital image (figure 5 and column 6, lines 5-14). Given the references at the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate tilt determining mechanism that detects and uses an edge of an object contained within said digital representation of said image to determine said orientation errors of said digital image taught in Tretter into Zimmermann which already teaches software implemented tilt determining mechanism that uses X-map and Y-map processor to perform two-dimensional transform mapping. The motivation to combine the references is that the Zimmermann already teaches using vertical and horizontal grid lines, which corresponds to the edges in Tretter to determine and correct the orientation error.

As per claim 14, Tretter teaches an automatic disable feature which disables said orientation correction when said orientation error is determined to be greater than a predetermined maximum error value (multiple skew angle at column 7, lines 32-57).

As per claim 15, Tretter does not set the predetermined maximum error value to be five degrees. However, as can be seen in the specification page 6, lines 21-22, there is nothing critical about the angle specified. Merely setting a threshold value to a five degree does not deemed to be patentably significant.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tretter in view of Sharp "GP1S36 Tilt Detecting Photointerrupter" (herein called 'Sharp').
As per claim 7, Sharp teaches that the automatic detection of orientation errors includes operating a tilt angle sensor to determine a tilt parameter value (page 1). Even though Tretter does not teach details on camera, Tretter discloses processing photographed images. Sharp teaches a tilt sensor which can be used in digital camera or cam coder. Sharp also teaches automatic detection of orientation errors includes operating a tilt angle sensor to determine a tilt parameter value (page 1). It would have been obvious to one of ordinary skills in the art to incorporate tilt sensor taught in the Sharp reference into the Tretter's skew angle correction mechanism because automatic detection of orientation errors is old and well-known technique in the image orientation correction art. Moreover, Tretter and Sharp are combinable because they are both directed to correcting the tilt in the image. Regardless of whether image is obtained by conventional optical camera or digital camera, both still require all the orientation distortion, including tilt and rotation correction.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yon Couso whose telephone number is (571) 272-7448. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 (fax number will change to 571-273-8300 effective July 15, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YJC

July 5, 2005

YON J. COUSO
PRIMARY EXAMINER